

MATERNAL CRH LEVELS IN THE EARLY THIRD TRIMESTER PREDICT THE TIMING OF DELIVERY AND FETAL GROWTH

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Corticotropin Releasing Hormone (CRH), a hypothalamic neuropeptide, has a major role in regulating pituitary-adrenal function and the physiological response to stress. During pregnancy, CRH is synthesized in large amounts by the placenta and released into maternal and fetal circulations. Various endocrine and autocrine/paracrine roles have been suggested for placental CRH related to mechanisms of parturition as well as fetal development. The aim of the present study was to *prospectively* assess the relationship between maternal plasma concentrations of CRH in the early third trimester of gestation and the timing of delivery and fetal growth.

In a sample of over 250 subjects with a singleton, intrauterine pregnancy, maternal plasma was collected at 30-32 weeks gestation and CRH concentrations were determined by radioimmunoassay. Each pregnancy was dated on the basis of last menstrual period and early ultrasonography. Parity, antepartum risk conditions, presence/absence of spontaneous labor, and infant birth outcomes were abstracted from the medical record.

Early third trimester levels of maternal CRH were inversely and significantly correlated with the timing of onset of spontaneous labor after adjusting for biomedical correlates of outcome including parity and antepartum risk. Gestational age at delivery was further dichotomized to differentiate term and preterm deliveries. Subjects who delivered preterm had significantly higher levels of CRH in the early third trimester of gestation than those who delivered at term. Fetal growth was assessed from a measure of infant birth weight adjusted for gestational age at birth. Maternal third trimester CRH levels were also inversely and significantly related to fetal growth. The implications of these findings are discussed in the context of the neuroendocrinology of placental CRH, human parturition and fetal development.

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